4.6 Dewatering Site Selection

In order to consider upland disposal/reuse as a viable option for the disposal of dredged material, adequate land area is required to accommodate the process to prepare dredged material for final disposal or reuse. A site or series of sites is needed to process and dewater dredged material to reduce the moisture content before transfer to an upland disposal or reuse site. As part of the DMMP DEIR process of exploring potential disposal options, harbor-side and upland site requirements were examined for transferring dredged material from the marine environment to the upland environment for final disposal/reuse.

4.6.1 Screening Process

An initial windshield survey of waterfront accessible areas throughout the south side of Cape Ann, from Rockport to Manchester By-the-Sea, was conducted to produce a list of potential dewatering sites. Dewatering site criteria such as size, topography and accessibility were the main factors considered during the initial windshield survey. The potential dewatering sites produced during the initial windshield survey were examined against specific screening factors so that feasible dewatering site alternatives could be identified. Input from local municipal officials and the Gloucester Harbor Dredging Subcommittee were also incorporated into the search for dewatering sites.

The DMMP dewatering screening process is a two tier process involving the first tier or initial screening of *exclusionary* site factors and a second tier screening of *discretionary* factors. The exclusionary factors only apply to the harbor-side site requirements, all other criteria are discretionary. The harbor-side requirements are exclusionary because, being the first link in the "dewatering/upland disposal process train", dewatering is the limiting factor for consideration of upland disposal. Thus, if a harbor-side site meeting the minimum requirements for dewatering could not be located, then upland disposal options are not feasible.

4.6.2 Screening Factors

The exclusionary factors for first tier dewatering process screening are described below:

D-1. Proximity to Dredging Site - Located within 10 miles of dredging projects. A typical scow (2,000 to 4,000 cy capacity) would be filled within about 2 hours at the dredge site. Scows typically travel at a speed of 5 miles per hour and, therefore, would take 2 hours to arrive at a dewatering site 10 miles away. Another 2 hours would be required for off-loading and another 2 hours for transit back to the dredge site. The total time elapsed for this process would be about 8 hours, a normal working day.

D-2. Pier Requirements - Pier or bulkhead with a minimum length of 120 feet. The harbor-side site adjacent to the pier must be adequately sized to provide an off-loading area and be capable of accommodating two way truck traffic. An area that does not have a pier/bulkhead was considered if construction of a temporary structure would be practicable.

D-3. Water Depth - The pier must have a minimum water depth of 12 feet during all tides. If an area is shallower than 12 feet, but has other positive attributes which could make it a suitable dewatering site, then the site may be considered. This would be possible only if minimal dredging is required to obtain the necessary water depth.

D-4. Dewatering Area - A minimum area of 3.2 acres is needed to provide for a diked dewatering facility for a 10,000 cy project (Figure 4-5). This includes adequate area to allow the treatment of effluent and/or connection to local sewer system**.**

Second tier discretionary screening factors include the following:

D-5. Timing/Availability - The site (or sites) must be available for the time frame required by the particular dredging project(s) to process dredged material.

D-6 - Access to Transportation Network - The site(s) should be located in an area that has adequate land-side access provided by the existing transportation network. Sites requiring minor upgrading, such as re-paving or constructing a temporary access road may be considered, provided the connecting transportation network is adequate to accommodate the trucking needs associated with the transportation of dredged material.

D-7. Haul Routes - Selected haul routes should avoid lateral or vertical obstructions or any other restrictions. Evaluation of sensitive receptors passed on the haul route should be considered. Other potential logistical problems/conflicts that might be encountered accessing a site should also be identified.

D-8. Present Habitat Types - Sites shall be evaluated for general vegetation cover, presence of wetlands, rare plant/wildlife habitat, and the surrounding landscape.

D-9. Existing Terrain (suitability to diking) - Site examination to determine potential for dike construction.

D-10. Flood Plains - National Flood Insurance Program, Flood Insurance Rate Maps will be consulted for each site to determine if a site is in or partially in a designated flood plain.

D-11. Agricultural Use - Determination of prime agricultural soils on the site.

D-12. Surrounding Land Use - Evaluation of adjacent ownership, present and projected land use. Sites located in industrial or commercial areas are preferred over sites in or adjacent to residential or recreational areas.

D-13. Odors/Dust/Noise Receptors - Evaluation of potential impacts and distance to sensitive receptors of odors, dust and noise from dewatering process methods selected. Sites at a distance from sensitive receptors are preferred over sites adjacent to sensitive receptors.

D-14. Consistency with Port Plan - Each proposed site was reviewed for consistency with the Gloucester Harbor Plan, specifically to determine whether the site(s) enhance(s) the values articulated in the Plan and conform to projected site-specific uses. This criteria is only applicable to potential dewatering sites identified within the municipal boundary of Gloucester.

D-15. Local, Regional, State Plans - Evaluation of consistency with Local, Regional and State long-range plans.

D-16. Ability to Obtain Permits - Likelihood of local, state, and federal regulatory approval.

D-17. Cost - The cost of the construction, operation, and restoration of the site was calculated for comparative purposes.

4.6.3 Screening Results

A total of 37 candidate dewatering sites were identified (Figure 4-10), including 31 candidate sites within or near Gloucester Harbor. Dewatering sites from Rockport in the east to Manchester By-the-Sea to the west were identified, with a majority of the potential sites in Gloucester.

All sites were subject to a windshield survey and review of existing information. Each dewatering site was evaluated against the evaluation factors listed above, and this information was recorded on data sheets (Figure 4-11) for each site. The dewatering site screening evaluation is summarized below.

4.6.3.1 Exclusionary Screening

A strict interpretation of the exclusionary screening criteria resulted in all candidate sites failing the screen. Twenty-seven (27) sites were eliminated because they did not meet the minimum size criteria. The remaining 10 sites had one or more of the following constraints: required access dredging (9 sites); had no existing piers or bulkheads located on-site (same nine sites); and/or, had use conflicts (one site). However, the Cape Ann Forge site was further considered due to its proximity to the dredging areas, the fact that it was a former industrial site, and that site dewatering operations could have little aesthetic or land use impacts to the site and adjacent areas.

4.6.3.2 Discretionary Screening

The Cape Ann Forge Site, (the sole site to survive the exclusionary screen, Figure 4-12) was eliminated as a candidate dewatering site in the discretionary screening phase. This was based largely on the fact that existing shellfish resources along the Annisquam River could be impacted by both temporary pier construction activity at Cape Ann Forge, and by access dredging activity along the Annisquam River Channel. The potential impact to the shellfish resources along the Annisquam River was considered significant since considerable effort has been spent to restore this resource to the Annisquam River over the years. Another issue raised included potential scow or barge travel limitations posed by crossing under the bridge structures over the Annisquam River.

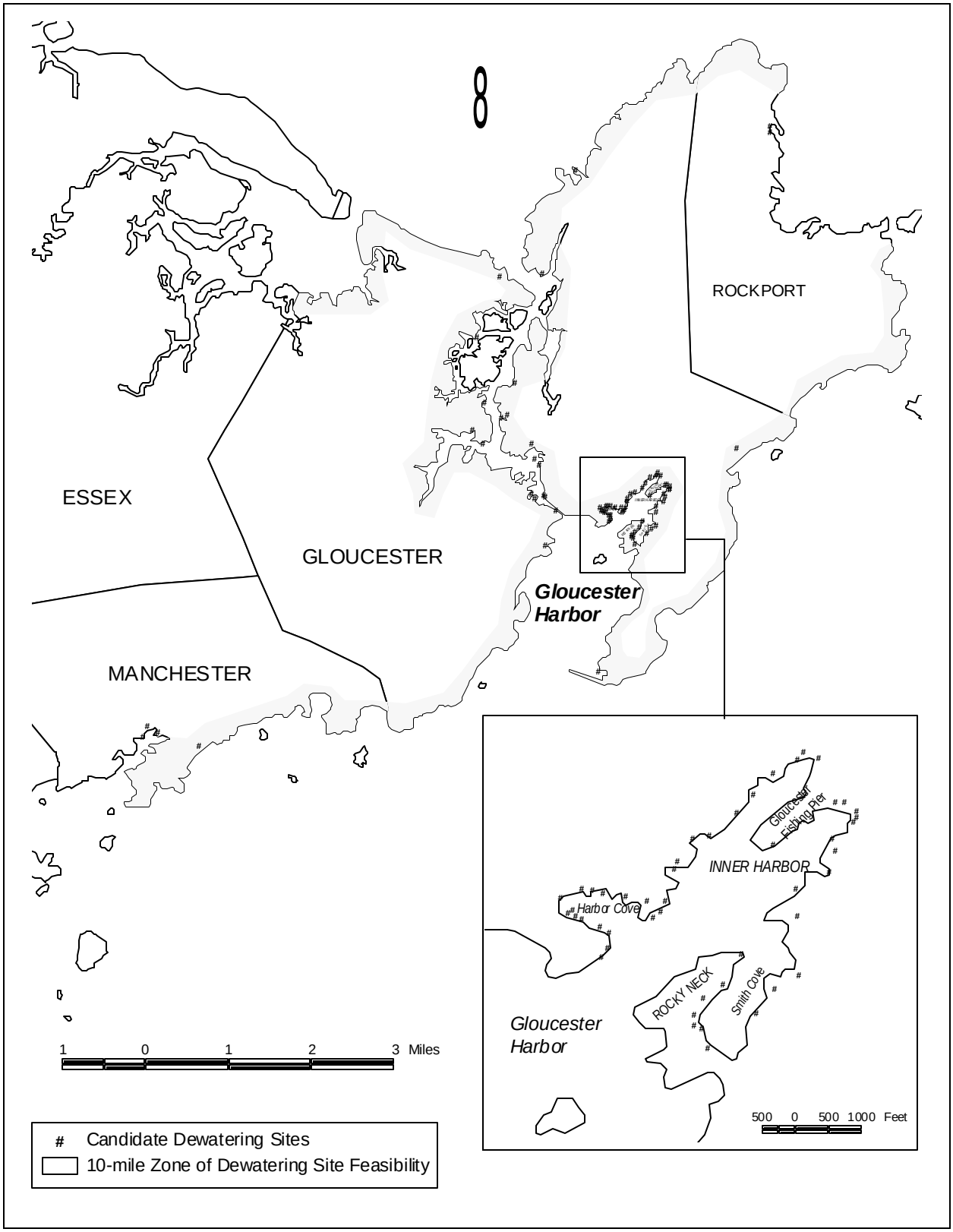

Figure 4-10: Candidate Dewatering Sites

DEWATERING SITE SCREENING

SITE LOCATION 1

HARBOR: SITE NAME:
CITY/TOWN: Lynn SITE ADDRESS:
GENERAL DESCRIPTION:

SITE CHARACTERISTICS

Proximity to Dredging Site (D-1):

Miles from Dredging Projects
Comments:

Pier Requirements (D-2):

Length (Feet)	Able to Accommodate Two Way Truck Traffic
Possible to create Pier:	

Water Depth (D-3):

Minimum Water Depth (Feet)
Possible to dredge to 12 feet:

Dewatering Area (D-4):

Area (Acres)	Dewatering Method
Comments:	

Timing / Availability (D-5):

Availability	Time Frame	Ownership

Access to Transportation (D-6):

Proximity to Highways (Miles)	Proximity to Rail (Miles)
Comments:	

Dredged Material Haul Route (D-7):

Restrictions /Obstructions	Sensitive Receptors
Comments:	

Figure 4-11: Example of Dewatering Site Data Sheet

Present Habitat Types (D-8):

Summary Type:

Successional Stage (D-8.a):	
Disturbance (degree) (D-8.b):	
Plant/Animal Diversity (D-8.c):	
Plant/Animal Integrity (D-8.d):	
Landscape Position (D-8.e):	
Wildlife Function/Use (D-8.f):	

Existing Terrain - suitability for diking (D-9):

Topographical Characteristics	Comments

Flood Plains (100 year) (D-10):

% Coverage	Comments

Agricultural Use (D-11):

Description	Comments

Surrounding Land (D-12):

Existing Land Use	Projected Land Use
Comments:	

Odor/Dust/Noise Receptors (D-13):

Name/Description	Distance	Comments

Consistency with Port Plan (D-14):

Consistency with Stated Goals	Relationship to Preferred Alternative
Comments:	

Local, Regional, State Plans (D-15):

Local	Regional	State
Comments:		

Ability to Obtain Permit (D-16):

Consistency with Federal Regulations	Consistency with State Regulations
Comments:	

Cost (D-17):

Construction	Operation	Restoration
Approx		

Figure 4-11: Example of Dewatering Site Data Sheet (Continued)

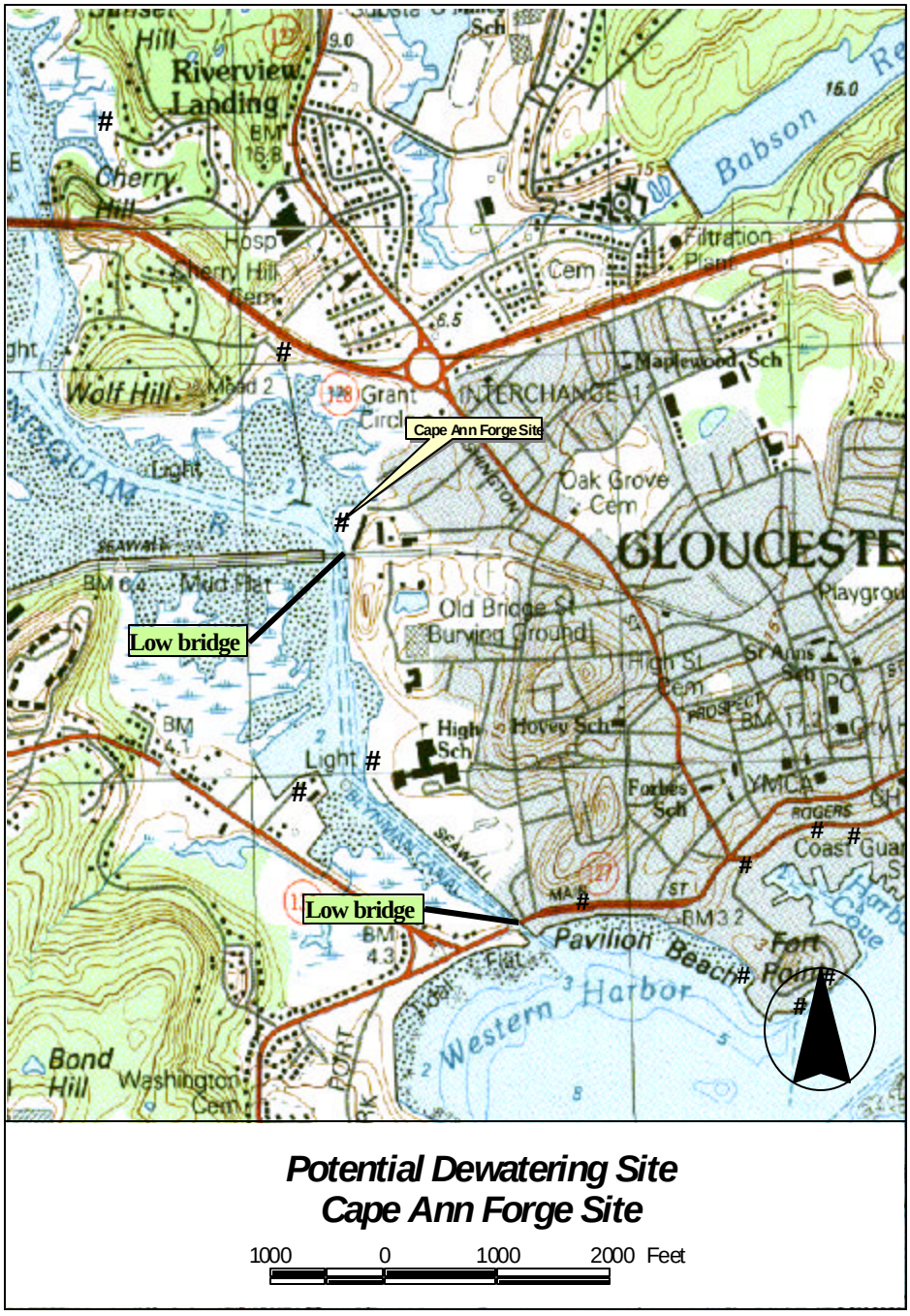

Figure 4-12. Cape Ann Forge Site

The dredging/dewatering/upland disposal process is a dynamic one, with numerous variables that can affect each element of the process. The size of the dewatering site will dictate the dredging rate (throughput). Larger dewatering sites can accommodate higher dredging rates. The dredging rate could be increased if the dredged material can be dewatered more quickly than expected, thereby allowing for removal of piles to the upland site to make room for new dredged material. So as described above, it is clear that the alteration of any of the key variables (dredging rate, pile height, dewatering area size and configuration) can significantly affect the entire dredging/dewatering/upland disposal operation. Addressing the dewatering constraints would be required prior to selection of an upland disposal site or alternative treatment technology as a Preferred Alternative for the DMMP.

Use of the Cape Ann Forge site as a dewatering site illustrates this concept: Use of this site would require construction of a temporary pier. Access and maintenance dredging of the Annisquam River Channel would also be required to provide unimpeded access to the pier under all tidal conditions for a 3,000 cy barge. The potential impacts to existing shellfish resources associated with these activities would need to be avoided, minimized or mitigated to the satisfaction of shellfish protection proponents and appropriate regulators.